

General

Guideline Title

Prevention of catheter-associated urinary tract infection. In: Evidence-based geriatric nursing protocols for best practice.

Bibliographic Source(s)

Wald HL, Fink RM, Makic MB, Oman KS. Catheter-associated urinary tract infection prevention. In: Boltz M, Capezuti E, Fulmer T, Zwicker D, editor(s). Evidence-based geriatric nursing protocols for best practice. 4th ed. New York (NY): Springer Publishing Company; 2012. p. 388-408.

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Assessment of Catheter-associated Urinary Tract Infection (CAUTI)

- The Centers for Disease Control and Prevention (CDC) has developed explicit surveillance criteria for CAUTI. In brief, the patient must have the following:
 - A positive urine culture (see Table 19.1 in the original guideline document) sent more than 48 hours after admission to the healthcare facility
 - An indwelling urinary catheter (IUC) at the time of or within 48 hours prior to the culture
 - One of the following: suprapubic tenderness, costovertebral angle pain or tenderness, or a fever higher than 38°C without another recognized cause; or a positive blood culture with the same organism as in the urine
- Measures
 - Outcomes
 - CAUTIs/1,000 catheter days
 - Processes
 - Catheter days and hospital days
 - Postoperative catheter days and patient days
 - Proportion of catheterized and admitted patients from emergency department (ED) or operating room (OR)
- Indications for IUCs can be operationalized using algorithms or protocols.

Nursing Care Strategies

Twenty percent to 69% of CAUTIs are preventable through the application of evidence-based care strategies.

Catheter Avoidance

- Established insertion guidelines for ED and OR
- Alternative strategies to manage urine output available:
 - Bedside commodes
 - Condom catheters
 - Moisture-wicking incontinence pads
 - Intermittent straight catheterization
 - Bladder scanner for monitoring and assessment
 - Bedpans and urinals that are functional
- Toileting schedules and frequent nursing rounds

Product Selection and Routine Care

- Catheter material is controversial:
 - Antimicrobial catheter materials have been shown to reduce catheter-associated bacteriuria (colonization), but impact on prevention of symptomatic CAUTIs during short-term insertions is unproven.
 - There is insufficient evidence to determine whether selection of a latex catheter, hydrogel-coated latex catheter, silicone-coated latex catheter, or all-silicone catheter influences CAUTI risk.
- Select the smallest size possible (less than 18 French).
- Use aseptic technique and sterile product during catheter insertion.
- Routine urethral meatus cleansing with soap and water during bath and after bowel movement.
- Secure catheter to leg.
- Maintain a closed system at all times.
- Keep drainage bag below level of bladder.
- Empty the bag when two-thirds full and before transport.

Timely Removal

- Systems that prompt providers to review the need for the catheter and encourage early removal. Examples include stop orders and reminder systems: audit and feedback, nurse-prompted reminders, and nurse-driven removal protocols.
- Measure of removal: Surgical Care Improvement Project (SCIP), SCIP-9 measure; catheter removal on postoperative day 1 or 2.

Surveillance and Education

- Measurement of processes and outcomes.
- Ongoing system evaluation, nursing reeducation, practice reminders, and public reporting of unit-based CAUTI rate data are strategies to inform the health care team of current practice outcomes and effectiveness of CAUTI prevention strategies.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Catheter-associated urinary tract infection (CAUTI)

Guideline Category

Evaluation

Management

Prevention

Risk Assessment

Screening

Clinical Specialty

Family Practice

Geriatrics

Infectious Diseases

Nursing

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To provide a standard of practice protocol to ensure that nurses in acute care are able to:

- Define catheter-associated urinary tract infection (CAUTI)
- Understand the epidemiology of CAUTI
- Define indications for indwelling urinary catheters (IUC)
- Identify evidence-based strategies and interventions for the prevention of CAUTI
- Understand how to engage an interdisciplinary team in the management of CAUTIs

Target Population

Adults age 65 and older

Interventions and Practices Considered

Assessment/Evaluation

1. Use of Centers for Disease Control and Prevention (CDC) explicit surveillance criteria: urine and blood cultures
2. Use of algorithms or protocols to operationalize indications

Management

1. Catheter avoidance
2. Product selection

3. Routine care
4. Timely removal
5. Surveillance
6. Education

Major Outcomes Considered

- Plan of care
- Documentation
- Catheter utilization

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Although the Appraisal of Guidelines for Research and Evaluation (AGREE) instrument (described in Chapter 1 of the original guideline document, *Evidence-based Geriatric Nursing Protocols for Best Practice*, 4th ed.) was created to critically appraise clinical practice guidelines, the process and criteria can also be applied to the development and evaluation of clinical practice protocols. Thus, the AGREE instrument has been expanded (i.e., AGREE II) for that purpose to standardize the creation and revision of the geriatric nursing practice guidelines.

The Search for Evidence Process

Locating the best evidence in the published research is dependent on framing a focused, searchable clinical question. The PICO format—an acronym for population, intervention (or occurrence or risk factor), comparison (or control), and outcome—can frame an effective literature search. The editors enlisted the assistance of the New York University Health Sciences librarian to ensure a standardized and efficient approach to collecting evidence on clinical topics. A literature search was conducted to find the best available evidence for each clinical question addressed. The results were rated for level of evidence and sent to the respective chapter author(s) to provide possible substantiation for the nursing practice protocol being developed.

In addition to rating each literature citation as to its level of evidence, each citation was given a general classification, coded as "Risks," "Assessment," "Prevention," "Management," "Evaluation/Follow-up," or "Comprehensive." The citations were organized in a searchable database for later retrieval and output to chapter authors. All authors had to review the evidence and decide on its quality and relevance for inclusion in their chapter or protocol. They had the option, of course, to reject or not use the evidence provided as a result of the search or to dispute the applied level of evidence.

Developing a Search Strategy

Development of a search strategy to capture best evidence begins with database selection and translation of search terms into the controlled vocabulary of the database, if possible. In descending order of importance, the three major databases for finding the best primary evidence for most clinical nursing questions are the Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Medline or PubMed. In addition, the PsycINFO database was used to ensure capture of relevant evidence in the psychology and behavioral sciences literature for many of the topics. Synthesis sources such as UpToDate® and British Medical Journal (BMJ) Clinical Evidence and abstract journals such as *Evidence Based Nursing* supplemented the initial searches. Searching of other specialty databases may have to be warranted depending on the clinical question.

It bears noting that the database architecture can be exploited to limit the search to articles tagged with the publication type "meta-analysis" in

Medline or "systematic review" in CINAHL. Filtering by standard age groups such as "65 and over" is another standard categorical limit for narrowing for relevance. A literature search retrieves the initial citations that begin to provide evidence. Appraisal of the initial literature retrieved may lead the searcher to other cited articles, triggering new ideas for expanding or narrowing the literature search with related descriptors or terms in the article abstract.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

Level I: Systematic reviews (integrative/meta-analyses/clinical practice guidelines based on systematic reviews)

Level II: Single experimental study (randomized controlled trials [RCTs])

Level III: Quasi-experimental studies

Level IV: Non-experimental studies

Level V: Care report/program evaluation/narrative literature reviews

Level VI: Opinions of respected authorities/consensus panels

AGREE Next Steps Consortium (2009). Appraisal of guidelines for research & evaluation II. Retrieved from <http://www.agreetrust.org?o=1397>

Adapted from: Melnyck, B. M. & Fineout-Overholt, E. (2005). Evidence-based practice in nursing & health care: A guide to best practice. Philadelphia, PA: Lippincott Williams & Wilkins and Stetler, C.B., Morsi, D., Rucki, S., Broughton, S., Corrigan, B., Fitzgerald, J., et al. (1998). Utilization-focused integrative reviews in a nursing service. *Applied Nursing Research*, 11(4) 195-206.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Not stated

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Decreased incidence of catheter-associated urinary tract infection (CAUTI)
- Improved plan of care, including:
 - Assessment that patient meets established catheter insertion criteria
 - Adherence to prompts for early catheter removal
 - Adherence to standardized catheter care guidelines
- Improved documentation of:
 - Dates of catheter insertion and removal
 - Type of catheter (new indwelling, chronic indwelling, reinsertion, change of device)
 - Reason for catheter insertion
 - Justification that catheter is still necessary
 - Postresidual void after catheter removal if patient is unable to void in 6 to 8 hours; bladder volume; intervention
- Improved monitoring of catheter utilization, including:
 - Unit-specific CAUTI rates
 - Average catheter duration (catheter days)
 - Surgical Care Improvement Project (SCIP) postoperative catheter removal on catheterization day 1 or 2
 - Trend unit-specific indwelling urinary catheter (IUC) usage

Potential Harms

Not stated

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Audit Criteria/Indicators

Mobile Device Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012

Guideline Developer(s)

Guideline Developer Comment

The guidelines were developed by a group of nursing experts from across the country as part of the Nurses Improving Care for Health System Elders (NICHE) project, under sponsorship of the Hartford Institute for Geriatric Nursing, New York University College of Nursing.

Source(s) of Funding

Hartford Institute for Geriatric Nursing

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [Hartford Institute for Geriatric Nursing Web site](#) .

Copies of the book *Evidence-Based Geriatric Nursing Protocols for Best Practice*, 4th edition: Available from Springer Publishing Company, 536 Broadway, New York, NY 10012; Phone: (212) 431-4370; Fax: (212) 941-7842; Web: www.springerpub.com .

Availability of Companion Documents

Possible outcome and process measures are available in the original guideline document.

The ConsultGerIRN app for mobile devices is available from the [Hartford Institute for Geriatric Nursing Web site](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on June 25, 2013. The information was verified by the guideline developer on August 6, 2013.

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